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REMARKS

Claims 1 and 3 through 18 and new Claims 19 and 20 are pending in the application. Claim 1 has been amended to delete the phrase "polyolefin free" and to emphasize that the crystallizable thermoplastic resins of the invention consist of polyester.

Claims 19 and 20 have been added to complete the record for examination and highlight advantageous embodiments of the invention.

Claim 19 is directed to advantageous embodiments of the invention in which the films of the invention exhibit at least a 25 % reduction in yellowness index in comparison to comparable polyester film incorporating either (i) barium sulfate and a stabilized flame retardant or (ii) barium sulfate alone. Support for Claim 19 can be found in the Application as filed, for example on Page 14, lines 20 – 22 and the Yellowness Index of Examples 1 through 3 in comparison to Comparative Examples 1 and 2 in the Table on Page 25.

Claim 20 is directed to advantageous embodiments of the invention in which the flame retardant is supplied as a predried or precrystallized masterbatch. Support for Claim 20 can be found in the Application as filed, for example on Page 11, lines 9 - 15.

Reexamination and reconsideration of this application, withdrawal of all rejections, and formal notification of the allowability of the pending claims are earnestly solicited in light of the remarks which follow.

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Rejection Under 35 USC 112

Claims 1 and 3 through 16 stand rejected 35 USC 112. Applicants respectfully submit that the phrase "polyolefin-free crystallizable thermoplastic" is fully supported within the application as filed, and that the subject matter of a claim need not be described literally in order for the disclosure to satisfy the description requirement. The specification as filed conveys with reasonable clarity to one skilled in the art that, as of the filing date sought, applicant was in possession of the claimed polyolefin-free films. However, solely to advance prosecution of the case, the claims have been amended with traverse to delete the term "polyolefin-free." Accordingly, Applicants respectfully request withdrawal of this rejection.

Claim Objection

In contrast to the opinion apparently urged within the Office Action, polyesters (including the recited polyethylene terephthalate, polybutylene terephthalate, and polyethylene naphthalate) do not contain polyolefins within their structure, nor are the polymer families related. The Examiner's attention is kindly directed to the attached pages of Hawley's Condensed Chemical Dictionary, Pages 897 through 898, describing polyethylene, and Page 899, describing polyethylene terephthalate.

More particularly, poly (ethylene terephthalate) (PET) does not contain polyethylene within its structure, nor is it related to polyethylene. Stated differently, PET and PEN are not block copolymers formed from units of polyethylene and joined to units of terephthalate. The repeating unit of PET is a single ethylene moiety, derived from ethylene glycol (a saturated dialcohol) bonded to a single terephthalate moiety, derived from an aromatic dicarboxylic acid. In contrast, PE is simply a chain of ethylene moieties, derived from ethyl vinyl, i.e. unsaturated, monomer. (For the sake of brevity, we will limit our remarks to PET, although analogous remarks apply for poly (butylene terephthalat) and poly (ethylene naphthalate)).

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In addition to being formed from altogether different raw materials, i.e. diacids and dicarboxylic acids versus vinyl monomers, the polymerization reactions used to form these two vastly different polymer families are altogether different, as well. PET is a condensation polymer formed by the reaction of ethylene glycol and either dimethyl terephthalate or terephthalic acid, producing either methanol or water as a by-product. PE is an addition polymer formed by the radiation polymerization of ethylene across its double bond.

The resulting physical properties exhibited by PET versus PE are also altogether different. For example, PET exhibits a melting point of about 265 °C (509 °F). PE typically exhibits a melting point of about 115 °C (240 °F).

Consequently, PET and PE are members of vastly different polymer families, i.e. polyesters versus polyolefins. Thus the claimed films, reciting crystallizable thermoplastic consisting of polyester selected from the group consisting of polyethylene terephthalate, polybutylene terephthalate, and polyethylene naphthalate, clearly excludes the presence of polyolefins, including polyethylene.

The Claimed Invention is Patentable in Light of the Art of Record

Claims 1, 3 through 7 and 12 through 16 stand rejected as unpatentable over Kim et al. in view of Srinivasan. Claim 8 stands rejected as unpatentable over Kim in view of Srinivasan in further view of Tono et al. Claim 10 stands rejected as unpatentable over Kim in view of Srinivasan in further view of von Meer. Claims 9 and 11 stand rejected as unpatentable over Kim in view of Srinivasan in further view of Yamazaki.

It may be useful to consider the invention as recited in the claims before addressing the merits of the rejection. The claims are directed to opaque white film

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formed from crystallizable thermoplastic that consists of polyester selected from the group consisting of polyethylene terephthalate, polybutylene terephthalate, and polyethylene naphthalate. The opaque white films further include barium sulfate, at least one UV stabilizer, at least one flame retardant and at least one optical brightener.

Surprisingly, as a result of the synergistic action of the combination of various film additives, e.g. the barium sulfate, flame retardant, UV stabilizer, and optical brightener, the films of the invention appear whiter, that is, has less of a yellow tinge, than conventional films formed with barium sulfate alone. The films of the invention can advantageously exhibit Yellow Indices that are 25% lower than comparable flame retardant white films and 38 % lower than comparable films including barium sulfate alone. Claim 19 is directed to embodiments of the invention exhibiting less yellowness in comparison to comparable films.

In addition, Applicants have further determined that by predrying and/or precrystallizing masterbatched flame retardant, it is possible to produce a low-flammability film without any caking in the dryer, and that at exposure to high temperature the film does not become brittle, and does not break when folded. Claim 20 is directed to aspects of the invention incorporating predried and/or precrystallized masterbatched flame retardant.

In contrast to the claimed films, Kim is directed to synthetic paper made from a blend of polyester and polyolefin with inorganic particles added to that blend. (Col. 1, line 61 – Col. 2, line 2; Col. 2, lines 32 – 34; and Col. 2, lines 47 – 49.) Kim's synthetic paper purportedly addresses issues with traditional polyester films, whose high densities are said to make them "inconvenient for use." (Col. 1, lines 22 – 26). In fact, one of Kim's "primary objects" was to provide a "low-weighted" film. (Col. 1, lines 57 – 60). Kim determined that polyolefin lowered the density of polyester, making the film more paper-like. (Col. 2, lines 20 – 25). The importance of polyolefin to Kim's invention

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is evidenced by the multiple times that polyolefin is noted within the specification. (Col. 1, line 67; Col. 2, lines 20 – 25; Col. 4, lines 9 – 13, et al.).

Kim does not teach or suggest the claimed invention. More specifically, by requiring the presence of both polyolefin and polyester, Kim does not teach or suggest the films of the invention, reciting crystallizable thermoplastic consisting of polyester. In fact, as noted earlier within the prosecution, the absence of polyolefin would actually render Kim's invention inoperable, i.e. not useful as a synthetic paper.

Kim further does not teach or suggest the recited beneficial combination of barium sulfate, at least one UV stabllizer, at least one flame retardant and at least one optical brightener. And Kim most certainly does not teach or suggest the beneficial yellowness properties imparted by such a combination, as recited in Claim 19. Nor does Kim teach or suggest the beneficial embodiments incorporating predried and/or precrystallized flame retardant masterbatch, as recited in Claim 20.

Accordingly, Applicants respectfully submit that the claimed invention is patentable in light of Kim, considered either alone or in combination with the art of record.

Srinivasan does not cure the deficiencies within Kim. Srinivasan is generally directed to meltblown, spunbond nonwovens for medical applications. (Col. 1, lines 9 – 11). Srinivasan found that a particular light stabilizer, N-alkoxy amine, imparts both UV resistant and flame retardant properties to the resulting nonwovens. (Col. 1, lines 11 – 14 and Col. 2, lines 55 – 58). Although noting a laundry list of commercially available resin, Srinivasan is primarily directed to polyolefins. Srinivasan emphasizes the importance of polyolefins to his invention by noting their use multiple times within his specification. (Col. 4, lines 13 – 15 and lines 43 – 46; Col. 5, lines 40 – 45, et al.)

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There would have been no motivation to have combined these references. Applicants respectfully submit that merely because the references can be combined is not enough, there must still be a suggestion. MPEP 2143.01 (section citing Mills). Kim is directed to synthetic paper. Srinivasan is directed to meltblown, spunbond nonwovens used in medical applications. These are altogether different fields of endeavor.

Applicants respectfully submit that the Office Action is indulging in impermissible hindsight by merely picking and choosing elements from the prior art while using the instant specification as the guide for that selection process.

However, even if using such a strategy were pursued (which Applicants submit should not be done), the claimed invention would not have resulted. Kim requires the presence of polyolefin. Srinivasan does not cure this deficiency. In fact, Srinivasan actually teaches away from the recited crystallizable thermoplastic consisting of polyester by emphasizing olefinic resins. Srinivasan also teaches away from the recited separate UV stabilizer and flame retardant by incorporating a single component providing both UV resistance and flame retardance. By further requiring the incorporation of a particular stabilizer, i.e. N-alkoxy amine, Srinivasan most certainly teaches away from the beneficial UV stabilizers recited in Claim 6 and the beneficial flame retardants recited in Claims 7 and 8.

As Srinivasan does not teach or suggest the recited beneficial combination of barium sulfate, at least one UV stabilizer, at least one flame retardant and at least one optical brightener, he most certainly does not teach or suggest polyester films exhibiting the beneficial yellowness properties recited in Claim 19. Srinivasan further does not teach or suggest the beneficial embodiments incorporating predried and/or precrystallized flame retardant masterbatch recited in Claim 20.

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Accordingly, Applicants respectfully submit that the claimed invention is patentable in light of Srinivasan, considered either alone or in combination with the art of record.

Tono is directed to fire resistant molded articles for use as building materials. (Col. 1, lines 9 – 15). Tono primarily discloses resin compositions containing thermally expandable graphite that expands and forms a heat-insulating layer upon heating. (Col. 5, lines 57 – 80 and Col. 10, lines 53 – 56). As noted by the Examiner in the Office Action of July 22, 2002 (Paper No. 9) Tono's compositions are formed from polyethylene.

There would have been no motivation to have combined these references. Kim is directed to synthetic paper. Srinivasan is directed to meltblown, spunbond nonwovens used in medical applications. Tono is directed to molded articles used as building materials. These are altogether different fields of endeavor, to say the least.

Regardless, Tono, directed to polyethylene compositions, does not teach or suggest the claimed invention, reciting crystallizable thermoplastic consisting of polyester. Tono further does not teach or suggest the incorporation of flame retardants within polyester resins. The processing conditions associated with polyethylene versus the recited polyesters are altogether different. Specifically, due to the differential in melting points, the extrusion and processing temperatures associated with the recited polyesters are much more aggressive than the molding temperatures associated with polyethylenes. Hence, there would have been no motivation to have incorporated the flame retardants of Tono into the polyester films of Claim 8.

Consequently, Applicants respectfully submit that Claim 8 is patentable in light of Tono, considered either alone or in combination with the art of record.

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Von Meer is directed to photographic papers coated with an electron-radiation-hardened prepolymer, which are said to exhibit improved image definition. As with the previously noted prior art, Van Meer requires the inclusion of addition polymerizable resins within his prepolymer coating composition. (Col. 2, lines 38 – 41).

There would have been no motivation to have combined these references. Kim is directed to synthetic paper. Srinivasan is directed to meltblown, spunbond nonwovens used in medical applications. Von Meer is directed to photographic papers. These are similarly altogether different fields of endeavor.

However, even if combined (which Applicants submit should not be done), Von Meer does not teach or suggest the claimed invention, reciting crystallizable thermoplastic consisting of polyester. Von Meer's incorporation of dye into a coating composition further does not teach or suggest including dye within polymer compositions used to extrude film. Coatings encounter much less severe processing conditions than imposed during extrusion. Consequently, Von Meer does not teach or suggest the claimed polyester films incorporating blue dye selected from the group consisting of cobalt blue, ultramarine blue and anthraquinone dyes, as recited in Claim 10.

Accordingly, Applicants respectfully submit that Claim 10 is patentable in light of Von Meer, considered either alone or in combination with the art.

Yamazaki is primarily directed to monoaxially oriented slit films. Yamazaki discloses three layered films that avoid exudation by incorporating additives into the center film layer alone. (Col. 1, lines 50 – 62). As noted by the Examiner in the Office Action of July 22, 2002 (Paper No. 9) Yamazaki is directed to compositions formed from polyethylene.

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There would similarly have been no motivation to have combined these references, as well. Kim is directed to synthetic paper. Srinivasan is directed to meltblown, spunbond nonwovens used in medical applications. Yamazaki is directed to monoaxially oriented slit films. These are similarly altogether different fields of endeavor.

However, even if combined (which Applicants submit should not be done), Yamazaki does not teach or suggest the claimed invention, reciting crystallizable thermoplastic consisting of polyester. Yamazaki's polyethylene compositions also do not teach or suggest incorporating either hydrolysis stabilizers or barium sulphate into polyester films, as recited in Claims 9 and 11, respectively.

Accordingly, Applicants respectfully submit that Claims 9 and 11 are patentable in light of Yamazaki, considered either alone or in combination with the art of record.

Conclusion

It is respectfully submitted that Applicants have made a significant and important contribution to the art, which is neither disclosed nor suggested in the art. It is believed that all of pending Claims 1 through 20 are now in condition for immediate allowance. It is requested that the Examiner telephone the undersigned if any questions remain to expedite examination of this application.

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It is not believed that fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional fees are necessary to allow consideration of this paper, the fees are hereby authorized to be charged to Deposit Account No. 50-2193.

Respectfully submitted,



Klaus Schweitzer
See attached Limited Recognition
Under 37 CFR § 10.9(b)

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